DOCUMENT RESUME

ED 109 215 TM 004 674

AUTHOR Shutt, Darold L.; Hannon, Thomas
TITLE The Psychological Evaluation of Bi-Lingual Pupils Utilizing the Hiskey-Nebraska Test of Learning Aptitudes. A Validation Study.
PUB DATE 1 Apr 73
NOTE 16p.

EDRS PRICE MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS *Aptitude Tests; *Bilingual Students; Comparative Analysis; Educational Diagnosis; Elementary Secondary Education; English (Second Language); Intelligence Tests; Mexican Americans; Navaho; Psychological Evaluation; *Special Education; *Student Placement; Test Bias; Testing Problems; *Test Validity
IDENTIFIERS *Hiskey Nebraska Test of Learning Aptitude; Wechsler Intelligence Scale for Children

ABSTRACT

Controversies centering around the accuracy of the estimates made of bilingual children's intellectual functioning and the effectiveness of prescriptive programs recommended for their subsequent development have resulted in the investigation and assessment of different instruments used for student placement in special education classes. The three major tasks undertaken in this study were: (1) to compare results obtained using the Hiskey-Nebraska Test of Learning Aptitude (HNTLA), a test developed for use with deaf children, with those recorded using the Wechsler Intelligence Scale for Children (WISC) Performance Scale; (2) to determine the validity and usability of the HNTLA for bilingual school children, and (3) to re-evaluate a sample of Mexican American and Navajo children previously assigned to special education classes. Study results point up important differences between the correlations obtained for the Mexican Americans and the Navajo on both the test scores and the ratings by teachers, parents and subjects. The I.Q. levels on the HNTLA correlated with WISC I.Q.'s significantly better for the Navajo sample than for the Mexican American; the same was true when the HNTLA median Learning Age was compared with the WISC median Test Age. Since the standardization samples for both tests did not contain suitable numbers of either Mexican Americans or Navajos, neither instrument furnishes appropriate norms for these minority groups. (Author/BJG)

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ED109215

THE PSYCHOLOGICAL EVALUATION OF BI-LINGUAL PUPILS UTILIZING THE HISKEY-NEBRASKA TEST OF LEARNING APTITUDES.

A Validation Study

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TM 004 674

Project Director: Darold L. Shutt, Ed.D.
Department of Psychology
Northern Arizona University

Project Co-Director: Thomas Hannon, M.A.
Division of Special Education
Arizona State Department of Education

April 1, 1973

ACKNOWLEDGMENTS

The project staff wishes to express appreciation to the following:

Dr. J. Lawrence Walkup, President, Northern Arizona University

Dr. Weldon P. Shofstall, State Superintendent of Public Instruction

Dr. Charles Fauset, Dean, College of Education, NAU

Dr. John Potts, Associate Superintendent of Public Instruction

Dr. Craig Sidles, Chairman, Dept. of Psychology, NAU

Dr. Marshall Hiskey, author of the HNTLA, University of Nebraska

Mr. Joseph Pasanella, Director, Division of Special Education

Mr. A. C. Navarro, Director, Special Education, Sunnyside

Mr. W. D. Trewhitt, Director, Special Education, Amphitheater

Mr. W. E. Putnam, Records Coordinator, Tucson, District 1

Mr. James Brunstein, Superintendent, Somerton

Mr. S. W. Wesner, Principal, Carlisle Elementary, Somerton

Mr. Wm. Canode, Superintendent, Yuma Union High School

Mrs. Betty Ann Becenti, Principal, Holbrook BIA Dormitory

Sister Marijane Ryan, Director, St. Michael's Special School, Window Rock

Mr. Alvin Cooper, Coordinator, Federal Programs, Tuba City Schools

Mr. Frank Glotfelty, Superintendent, Tuba City Schools

PROJECT STAFF

Dr. Darold L. Shutt, Director

Mr. Thomas Hannon, Co-Director

Mr. Joseph Abril, Coordinator

Dr. Leo Munoz, Examiner, Phoenix Area

Mrs. Mary Ann Smith, Examiner, Navajo Reservation Area

Mrs. Karen Younger, Examiner, Tucson Area

Mr. David Sanchez, Examiner, Tucson Area

Mr. Kenneth Sides, Examiner, Yuma Area

Mr. Robert Jones, Examiner, Tuba City Area

Dr. Jerry Petersen, Statistian

Miss Arden Powell, Research Assistant

Mr. Ralph Osborn, Student, Research Assistant

Miss Rosemary Knocki, Interviewer, Navajo Reservation Area

Mrs. Sandra Waltzer, Secretary

THE PSYCHOLOGICAL EVALUATION OF BI-LINGUAL PUPILS
UTILIZING THE HISKEY-NEBRASKA TEST OF LEARNING APTITUDES

The evaluation of bi-lingual pupils for placement in special education classes has always been a difficult process for the school psychologist. Concerned educators, boards, parents and state agencies as well as school psychologists have questioned the validity of the instruments and techniques employed in the evaluations. In recent years legal actions have been instituted which resulted in court involvement (1).

The controversies center around the accuracy of the estimates made of the bi-lingual child's intellectual functioning and the effectiveness of the prescriptive programs recommended for his subsequent educational development.

The two tests most commonly used for diagnosis and placement have been the Standford-Binet and the Wechsler. Both of these instruments have been criticized for their emphasis on English verbal facility or their lack of items at lower levels (Littell, 1960) and (Kennedy, Van de Reit, & White, 1963). Standardization samples employed by Wechsler for his tests and by Terman for the Standford-Binet were drawn largely from primary English speaking populations. Cultural bias combined with experiential factors in the test items have led to serious questioning of the appropriateness of these tests in the psychological evaluation of minority group, bi-lingual children (2).

A strong need to investigate and assess different instruments for placement of such pupils in special classes served as the

stimulus for the present study.

The Instrument Selected

Considering the objections to the tests previously incorporated into testing batteries, the type of instrument sought should meet certain criteria: 1. It should be as non-verbal as possible. 2. Ideally, it should assess similar intellectual functions as do the SB and Wechsler. 3. The items should contain a minimum of cultural factors. 4. The test should be relatively short and easy to administer. 5. Finally, it should have acceptable validity and reliability.

The Hiskey-Nebraska Test of Learning Aptitudes, a test developed for use with deaf children, appeared to be most promising. Since deaf children can neither hear verbal instructions nor respond verbally, instructions are given in pantomime and the subject chooses answers by pointing. The test can be administered by anyone trained in the principles of individual testing and requires only forty-five minutes to one hour for completion. Since the HNTLA emphasizes performance, the verbal component which was criticized on the SB and Wechsler is not a factor. A few items might be judged as culturally biased. These, however, occur in subtests which require only the identification or recognition of two objects which are similar or associated. Abstract concepts are tested through the use of non-verbal symbols and geometric designs.

Numerous studies have compared the Hiskey-Nebraska with the Standford-Binet, the Wechsler, the Leiter International

Performance Scale and selected achievement tests. Newland found a correlation of .82 between I.Q.'s obtained by children 5 to 11 years on the Wechsler Intelligence Scale for Children and the HNTLA (3). In a comparison of the Standford-Binet Form L-M and the HNTLA with a sample of mentally retarded children (Howard, 1969) the HNTLA proved accurate and suitable for M-R testing. Correlations of from .62 to .66 were found between the HNTLA and the Gates Reading, the Metropolitan Achievement and the Standford Achievement tests (Giangreco, 1966). The Leiter and the Hiskey-Nebraska agreement was .77 with the HNTLA results averaging 12 I.Q. points higher than the Leiter (4). Giangreco found the correlation of teacher ratings with the HNTLA to be .80 (5).

> With regard to the importance of language in psychological evaluations, Darcy (1963) reported, "While the bulk of evidence indicates that bilingual children receive significantly lower scores on verbal intelligence tests than comparable monglots, this inferiority does not hold if the tests are of a non-verbal type, particularly if the monolingual and the bilingual subjects are of the same socioeconomic class". Lambert and Peal (1962) found that bilingualism in families of the same socioeconomic class as monolingual families is an asset. Killian (1971) compared test results on the WISC, Illinois Test of Psycholinguistic ABilities and the Bender Gestalt Test for Mexican American kindergarten and first-grade school children. He concluded that once meaningful information is decoded or received by the Mexican American child, he appears to do as well as the Anglo-American child.

He found no significant differences among his Anglo-American and Mexican American samples for nonverbal tasks (6).

In 1960 faculty members of the College of Education of Arizona State University conducted a 3 year study of 188 recent immigrant Mexican American and Indian children in special classes for bilingual children. They found that the difference between true mental deficiency and pseudomental deficiency was related to language, cultural and socioeconomic limitations. Bilingual and definitely unilingual children had higher performance in both I.Q. and achievement tests than did children with average or below average facility with 2 languages.

Procedure

Three major tasks were undertaken in the current study. These were: 1. To compare results obtained using the HNTLA with those recorded using the WISC Performance Scale. 2. To determine the validity and usability of the HNTLA for bi-lingual school children. 3. To re-evaluate a sample of Mexican American and Navajo children previously assigned to special education classes.

The sample selected for the study was composed of 50 Mexican American and 50 Navajo children currently enrolled in special education classes in the public schools of Arizona. Ages ranged from 5 years, 6 months to 16 years. All subjects were primary language speakers in Spanish or Navajo (agreed upon by parents and teachers) and all had been recommended for special education classes.

As a further check of the validity of the results, a questionnaire was prepared and administered by a bi-lingual examiner to the teacher, the parents, and the pupil. This questionnaire allowed these three persons to express an opinion concerning the academic achievement, academic potential, emotional adjustment, work habits and social relationships of the subject tested. The questionnaire was administered to the parent and the pupil in his own language.

The HNTLA was administered with pantomime instructions and results tabulated utilizing both the norms for deaf and those for hearing children. Learning ages, using deaf norms were compared with mental test-ages from the Performance Scale results of the Wechsler Intelligence Scale. WISC I.Q.'s were compared with I.Q. results on the HNTLA. In addition, each subtest of the Hiskey-Nebraska was compared with each subtest of the WISC Performance Scale.

Results

The correlation between the HNTLA I.Q. and the WISC Performance Scale I.Q. was .6835 for the combined samples of Navajo and Mexican American pupils. The correlation between the HNTLA Median Learning Age and the WISC Performance Scale Median Test Age was .6749 for the combined samples. Both of these correlations were significant at the .01 level.

For the Navajo sample the correlation between the HNTLA I.Q. and the WISC Performance Scale I.Q. was .7337 and the Median Learning Age correlated with the WISC Median Test Age .7713. The corresponding correlations for the Mexican American sample

were .4970 and .4124. All of these were significant at the .01 level.

Table I presents the correlations between the combined sample subtests of the HNTLA and the WISC Performance Scale. Only those correlations which were significant at the .01 level were included.

TABLE I

Significant Correlations Between HNTLA and WISC Performance Scale Subtests

HNTLA	WISC PERFORMANCE				
	Pic.Com.	Pic.Arr.	Obj.Ass.	Cdng.	Bl.Deg.
Bead Pat.	----	.4586 (.4538)	.5198 (.5256)	----	------
Mem.Color	-----	----	----	----	.4076 (.3992)
Pict.Iden.	.4319 (.4017)	----	---- (.3777)	----	.4677 (.4271)
Pict.Assoc.	----	.4359 (.4055)	----,	----	.3936
Paper Fldg.	----	----	----	----	----
Vis.Attn.Sp.	.4499 (.4308)	----	----	----	----
Blk.Pat.	.3882 (.3995)	.4397 (.4439)	.4343 (.4415)	.4562 (.4523)	.4779 (.4842)
Com.Drwng.	.5610 (.5613)	.3799 (.3849)	.4156 (.4144)	.3734 (.3738)	.4002 (.3995)
Mem.Digits	.3945	.4879 (.3933)	.6443 (.5374)	.4764 (.3940)	.6254 (.5097)
Puzz.Blks.	----	-----	----	----	.3968 (.3837)
Pict.Ana.	.4043 (.4635)	----	.3968	----	----
Spat.Rel.	----	----	----	----	.3909

Hearing norm correlations are in ( ).

It will be noted that three of the HNTLA subtests, Block Patterns, Completion of Drawings and Memory for Digits, correlated significantly with all five of the WISC Performance Scale Subtests. The HNTLA subtest, Paper Folding failed to reach significant correlation levels with any WISC Performance Scale subtest. The highest correlations were found between the HNTLA Memory for Digits and the WISC Object Assembly and Block Designs.

Teacher, parent and subject ratings on perceptions of the subject's work habits, social relations, emotional behavior, academic achievement and academic potential, revealed significant differences in each of the areas assessed. Table II contains the correlations between parents teachers and subject ratings on the five areas. (Combined sample of Navajo and Mexican American children.)

Table III illustrates correlations between parent, student and teacher ratings on the questionnaire when the Navajo sample is separated from the Mexican American sample.

TABLE II

Correlations Between Teacher and Parent, Teacher and Subject, and Parent and Subject Ratings of Subjects on Selected Behaviors.

(Combined Samples)

Variable	Teach.-Parent	Teach.-Subj.	Parent-Subj.
Work Habits	.4902	.5035	.4960
Social Relations	.4461	.4788	.4335
Emotional Behavior	.2811*	.5566	.4404
Academic Achievement	.4354	.3592*	.4380
Academic Potential	.3594*	.4339	.4380

Correlations with * not sig. at .01 level.

For the combined samples the highest agreement occurred between the teacher and the subject except on academic achievement. Parents and children agreed significantly on all five variables.

TABLE III

Correlations Between Parent-Teacher-Student Ratings on Selected behaviors. (Navajo Sample, Mexican American Sample Separated)

Variables	Teach.-Parent	Teach.-Subj.	Parent-Subj.
Work Habits	.7186 (M-A)	.6616 (M-A)	.5463 (M-A)
	.1762 (Nav)*	.3137 (Nav)*	.5844 (Nav)
Social Relations	.6449 (M-A)	.5417 (M-A)	.4983 (M-A)
	.3459 (Nav)*	.4138 (Nav)	.4597 (Nav)
Emotional Behavior	.7415 (M-A)	.6128 (M-A)	.4698 (M-A)
	.0060 (Nav)*	.5311 (Nav)	.4547 (Nav)
Academic Achievement	.3713 (M-A)	.0324 (M-A)*	.3645 (M-A)*
	.4487 (Nav)	.5431 (Nav)	.6220 (Nav)
Academic Potential	.4067 (M-A)	-.0612 (M-A)*	.0972 (M-A)*
	.3521 (Nav)*	.6741 (Nav)	.6430 (Nav)

Correlations with * not sig. at .01 level. Mexican American N=28 Navajo N=25

Teacher-Parent agreement for Mexican Americans was significant at the .01 level for all variables. Navajo parents agreed with the teacher ratings only on Academic Achievement. Mexican American children showed high concurrence with teachers on Work Habits, Social Relations and Emotional Behavior but very low agreement on Academic Achievement and Academic Potential. A similar pattern resulted between Mexican American parents and subjects ratings on the same variables. Navajo children disagreed with their teacher ratings only on Work Habits and concurred with their parents on all five behavioral areas.

Discussion

Study results point up important differences between the correlations obtained for the Mexican Americans and the Navajos on both the test scores and the ratings by teachers, parents and subjects. The I.Q. levels on the HNTLA correlated with WISC I.Q.'s significantly better ($P < .05$) for the Navajo sample than for the Mexican American. The same was true when the HNTLA median Learning Age was compared with the WISC median Test Age. This would seem to indicate that the essentially Anglo norms utilized for both tests show more agreement for approximate I.Q.'s and Learning Ages for the Navajos than for the Mexican Americans. The HNTLA rated the Mexican Americans lower on both I.Q. and Learning Age than did the WISC. To a lesser degree the same was true for the Navajos.

Since the standardization samples for both tests did not contain suitable numbers of either Mexican Americans or Navajos, neither instrument furnishes appropriate norms for these minority groups. The fact that a sufficiently high correlation was found between the two tests to conclude that the HNTLA is a valid test for use with both groups makes the preparation of Navajo and Mexican American norm tables for these pupils a most pressing need. A confounding factor in the testing results should be recognized. Six different examiners were used in the study. Had it been possible to assign only two examiners, a Navajo and a Mexican American, to do the testing, greater test administration uniformity would have been possible. Such a procedure would have been highly desirable and increased confidence could have been placed on the

obtained results.

It might be held that the questionnaire ratings were likewise affected by the fact several interviewers were utilized. Although standardized presentation of items was emphasized some deviations from exact wording no doubt occurred. Conclusions regarding agreement and disagreement between teacher, parent and subject on the behaviors assessed should be made with caution.

The use of pantomime instructions, developed for use with deaf subjects, might be questioned when used on hearing children in view of the fact that neither the deaf norms nor the hearing norms combine pantomime instructions and hearing children. No assumption was made in this study that deaf Anglo and hearing bi-lingual children were similar. However, where language facility must be de-emphasized, pantomime instructions appear to be appropriate if such instructions are clear and easily comprehended by the testee. Also, no assumption was made that either set of norms furnished for the HNTLA were appropriate for the subjects included in the study.

Implications

The HNTLA is an appropriate and valid instrument for the testing of bi-lingual children for placement in special programs. The correlations obtained when subtest scores, learning ages and intelligence quotients from the HNTLA were compared with similar scores from the WISC were significant at the .01 level of confidence for a two-tailed test. Since a hearing child operates in a much different manner than a deaf child in his responses to certain problem situations, norm tables must be prepared for the specific groups involved which take this fact into account.

Mexican American parents show a high degree of agreement with teacher ratings of their children. Navajo parents show a lesser degree of concurrence with teacher ratings. Mexican American children tend to disagree with ratings by both their teachers and parents on matters relating to academic achievement and academic potential. Navajo pupils find work habits as the only area of disagreement with teacher ratings and no significant disagreement with their parents in any of the variables measured.

Further investigation of parent-teacher-subject attitudes toward factors related to success in school should be conducted. Refinement of the items used in the questionnaire along with different interview techniques, would enable the researcher to draw more specific conclusions regarding this vital issue.

A similar validation study utilizing the HNTLA and the WISC Performance Scale or some other instrument should be considered for other minority groups with the eventual goal being the preparation of norm tables for those groups also.

A final implication of this study is the need for an instrument or technique for determining true primary language. The lack of such a technique forced the research staff to rely on the judgment of the teacher and parent regarding the child's primary language. Questionnaire results showed some disagreement on this point among teachers and subjects, and parents and subjects. An objective and discriminative measure of linguistic ability is badly needed.

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